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From: Elaine C. VonSpreckelsen, Patent Prosecution Specialist
Sender's Direct Line: (303) 894-6163
Date: June 18, 2004
Client Number: 013176.0431C1US (Formerly 13176.431US)

Comments:

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Serial No.: 10/626,413 Group Art Unit: 2812
Filed: 24 Jul 2003 Examiner: Tsai, H. Jey
Confirmation No.: 9869

Attached please find the following documents to be entered into the above application:

1. Request For Corrected Filing Receipt (1 page)
2. Copy of Official Filing Receipt (2 pages)
3. Copy of first page of application as filed (1 page)

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Practitioner's Docket No. 013176.0431C1US (Formerly 13176.431US)

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Paz de Araujo, Carlos A.; McMillan, Larry D.; Solayappan, Narayan; Joshi, Vikram.
Application No.: 10/626,413 Group No.: 2812
Filed: 07/24/2003 Examiner: Tsai, H. Jey
Confirmation No.: 9869

For: FERROELECTRIC AND HIGH DIELECTRIC CONSTANT INTEGRATED CIRCUIT CAPACITORS WITH THREE-DIMENSIONAL ORIENTATION FOR HIGH-DENSITY MEMORIES, AND METHOD OF MAKING THE SAME

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REQUEST FOR CORRECTED FILING RECEIPT

- Attached is a copy of the Official Filing Receipt received from the PTO in the above application for which issuance of a corrected filing receipt is respectfully requested.
- There is an error with respect to the following, which is incorrectly entered:

Error in
Domestic Priority data as
claimed by applicant

Correct data
This application is a CIP of 10/302,441 11/22/2002
AND is a CIP of 10/302,442 11/22/2002
AND is a CIP of 09/998,469 11/29/2001

A copy of the first page of the application as filed is also enclosed.

- The correction is not due to any error by Applicants and no fee is due. If any additional fee is due, please charge Deposit Account No. 50-1848.

Date:

Reg. No.: 28,494

Tel. No.: 303-894-6114

Fax No.: 303-894-9239

Signature of Practitioner

Carl A. Forest

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CERTIFICATE OF MAILING/TRANSMISSION (37 C.F.R. Section 1.8a)

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FACSIMILE

- ☒ transmitted by facsimile to the Patent and Trademark Office at 703-746-9195.

Signature

Elaine C. Von Spreckelsen

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(Request for Corrected Filing Receipt--page 1 of 1)



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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/626,413	07/24/2003	2818	1932	13176.431US	12	81	4

CONFIRMATION NO. 91169

24283
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FILING RECEIPT



OC000000012261858

Date Mailed: 04/02/2004

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Carlos A. Paz de Araujo, Colorado Springs, CO;
 Larry D. McMillan, Colorado Springs, CO;
 Narayan Solayappan, Colorado Springs, CO;
 Vikram Joshi, Colorado Springs, CO;

Assignment For Published Patent Application

Symetrix Corporation, Colorado Springs, CO;

Domestic Priority data as claimed by applicant

This application is a CIP of 10/302,441 11/22/2002
 which is a CIP of 10/302,442 11/22/2002
 which is a CIP of 09/998,469 11/29/2001

Foreign Applications

If Required, Foreign Filing License Granted: 04/01/2004

Projected Publication Date: 07/08/2004

Non-Publication Request: No

Early Publication Request: No

RECEIVED

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Patton Boggs LLP

Date Docketed: 4/6/04
 Received by: [Signature]
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Title

Ferroelectric and high dielectric constant integrated circuit capacitors with three-dimensional orientation for high-density memories, and method of making the same

Preliminary Class

365

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Title 37, Code of Federal Regulations, 5.11 & 5.15**

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13176.431US

**FERROELECTRIC AND HIGH DIELECTRIC CONSTANT INTEGRATED
CIRCUIT CAPACITORS WITH THREE-DIMENSIONAL ORIENTATION FOR
HIGH-DENSITY MEMORIES, AND METHOD OF MAKING THE SAME**

5

RELATED INVENTIONS

This application is a continuation-in-part application under 37 CFR 1.53(b) of U.S. Patent Application Serial No. 10/302,441 filed November 22, 2002, and U.S. Patent Application Serial No. 10/302,442 filed November 22, 2002, and U.S. Patent Application Serial No. 09/998,469 filed November 29, 2001, which are hereby
10 incorporated by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention pertains to the field of high-density memories and, particularly, memories that utilize ferroelectric capacitors.

15 *2. Statement of the Problem*

Ferroelectric memories are nonvolatile memories offering performance and densification advantages over conventional nonvolatile memories, such as electrically erasable programmable read only memories (EEPROM) and erasable programmable read only memories (EPROM). U.S. Patent No. 5,046,043 issued September 3, 1991
20 to Miller et al. shows a 1T/1C memory cell having a lead zirconium titanate (PZT) ferroelectric capacitor alternatively stacked over a contact hole or within a conduit leading to the transistor source/drain region. The configuration of the Miller et al. ferroelectric memory cells is similar to that of a conventional dynamic random access memory (DRAM) cell. However, the operation and timing are different, particularly in
25 that the cell does not need to be refreshed as often because memory storage is relatively permanent. A refresh operation is one in which the memory logic senses the state of the memory cells and writes the state of the memory that has been sensed back to the memory cells in an identical format to that which has been sensed.

Permanence or nonvolatility of memory storage results from the ability of
30 ferroelectric materials to polarize in the presence of an applied electric field, and to retain that polarization state once the field is removed. Thus, a logical one or zero is represented by the polarization state of the ferroelectric material in the capacitor. Memory sense amplifiers and logic circuits are used to determine the polarization state